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## ***FEATURE ARTICLE***

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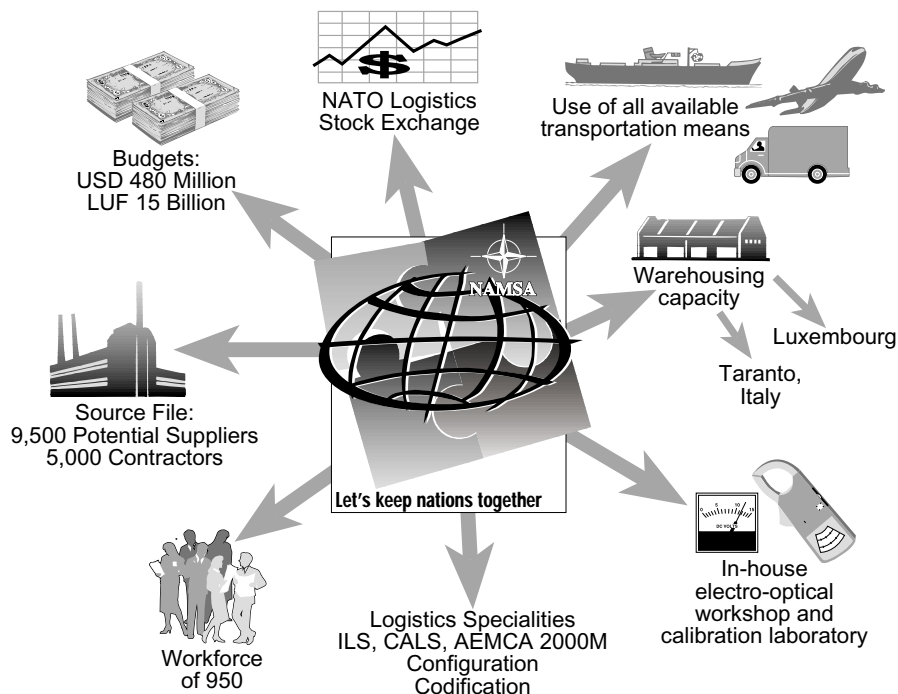
### **NATO Maintenance and Supply Agency: Partnership of Nations, Industry and Foreign Military Sales**

By

**Tim Russell**  
**NATO Maintenance and Supply Agency**

#### **Introduction**

For 41 years the NATO Maintenance and Supply Agency (NAMSA) in Capellen, Luxembourg, has been the principal NATO logistics agency. NAMSA is the largest of the NATO agencies, with an international workforce of some 950 logisticians, engineers, contracting officers, and administrative support personnel drawn from the NATO nations. Other NAMSA facilities outside Luxembourg include its Southern Operational Centre in Taranto, Italy, and the HAWK Logistics Management Office near Paris. NAMSA is represented at the U.S. Army Aviation and Missile Command in Huntsville, Alabama, at SHAPE AWACS Force Command in Mons, Belgium, and at the latter's main operating base in Geilenkirchen, Germany. NAMSA's business philosophy is simple and effective: by consolidating nations' requirements for maintenance, engineering and supply management services, making bulk procurements and maintaining central stocks of spare parts, it is possible to supply services and parts at lower cost and more quickly than is the case when individual nations make their own arrangements, sometimes competing with one another.



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The NATO Maintenance and Supply Organization (NAMSO) of which NAMSA is the executive arm was formed following U.S. and German initiatives, and the North Atlantic Council approved the NAMSO charter in 1958. Germany and the U.S. are still the major customers. Almost all of the systems NAMSA supports are of U.S. origin, but this is beginning to change. Military Committee 319/1 Principles and Policy for Logistics and AJP4 (A) Allied Joint Logistics Doctrine (supply, maintenance, transportation, medical, centralized contracting, and infrastructure engineering) are creating a trend towards joint logistics responsibilities.

### Southern Operational Centre



- Created by SHAPE in 1972
- Covered storage 17,500 m<sup>2</sup>
- Open air storage 80,000 m<sup>2</sup>
- NATO outer port under construction
- Taranto is major container port
- SOC depot located on Mare Piccolo
- Italian Navy repair facility/ammo depot
- Grotaglie Naval Air Base at 20 Km
- ITAF Base at nearby Giaio del Colle
- Bari and Brindisi at 70 Km
- Road and air links between SOC/Lux
- Italian Customs office at SOC
- Close to mid-East and North Africa
- New Marketing Effort
  - Pre-positioning
  - Service Provider

NAMSA is not a commercial company and operates on a no profit, no loss basis. NAMSA brings NATO/Partnership for Peace (PfP) nations together through cooperative logistics to achieve economies of scale by means of consolidation, redistribution, centralization, flexibility and international competition. Since 1990 NATO has changed dramatically and so has NAMSA. Warsaw Pact Cold War adversaries are now peace keeping partners. In 1995 the North Atlantic Council approved NAMSA technical support for PfP nations. NATO operations are now joint operations, and logistics is becoming a joint responsibility. NATO nations have realized peace dividends by reducing forces and withdrawing systems from use, but the nations are demanding even more savings while maintaining significant combat power. At the same time the information technology revolution has occurred making electronic business a reality. To increase customer satisfaction NAMSA has two major initiatives. The first, which is nearing completion, is to reduce administrative costs by efficiency improvements made possible by business process reengineering and the acquisition of a commercial integrated business management system, SAP-R/3. NAMSA administrative costs are decreasing relative to operational costs. The second is to create new, value-added services for existing and new customers that also enable NAMSA overhead costs to be distributed over more programs. NAMSA is currently supporting more than thirty weapon systems. That support is generally managed through weapon system partnerships (WSP) which group nations using common systems. The U.S. participates in the Ammunition, C-

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130/P-3, MLRS and Patriot weapon systems partnerships. U.S. armed forces in Europe are increasingly outsourcing work to NAMSA.

### **NAMSA Highlights**

The NATO Maintenance and Supply Organization (NAMSO) sets the NAMSA policies and budgets. Each NAMSO nation has a member on this Board of Directors. NAMSO is supported by logistics and finance/administration committees. The legal and regulatory bases for U.S. participation in NAMSA services include:

- The NAMSO Charter
- *NATO Mutual Support Act of 1979* - 10 U.S.C. §§2341-2350
- WSPs authorized by 10 U.S.C. § 2350d (Chapter 138, Subchapter II)
- DoD Directive 2010.8, *DoD Policy for NATO Logistics*
- DoD Directive 2010. 9, *Mutual Logistics Support Between the U.S. and Governments of Eligible Countries and NATO Bodies*
- USEUCOM Directive Number 60-8 of 24 May 1996, *Logistics Support Using Acquisition and Cross-Service Agreements*.

Weapon systems partnerships are legal entities of nations which establish NAMSA workload and budgets for specific weapon systems. NAMSO nations have agreed to directives that describe how NAMSA will perform logistics, administrative, finance and procurement functions. As shown above, NAMSA has an infrastructure in place to assist in implementing new services. NAMSA has capabilities in all logistics functions and complements, but does not duplicate, national logistics capabilities. NAMSA prepares contracts to fulfill customer supply and repair (except for some in-house electro-optic and calibration capabilities) requirements. NAMSA contracts with FMS, national depots/companies and commercial companies. Currently, about 45 percent of NAMSA's work is with U.S. companies. Industry working for NATO nations on defense repairs/overhauls, through the nations, can use NAMSA services. NAMSA does not pay value-added taxes and has customs offices in Capellen and Taranto to facilitate movement of material. NAMSA brokers common solutions to common problems normally by contracting, but increasingly by turning one nation's problems into another's solution. As shown on this chart, NAMSA is flexible in organizing support arrangements for customers. About 40 percent of NAMSA's work is for NATO common funded programs such as NATO AWACS, NATO air defense and communication systems and infrastructure projects. The rest is funded by nations who see the benefits of doing logistics in cooperation. Support conferences (SC) are similar to WSPs but are not legal entities so NAMSO sets the manpower, budgets and services based on SC recommendations. NAMSA also provides support on an individual nation basis and by subscription. NAMSA was there when NATO started operation Joint Endeavour in the Former Republic of Yugoslavia.

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## **NAMSA Support Arrangements**

- NATO military budget comitte/SHAPE funded:  
Communications, air defense, NATO AEW&C
- Weapon System Partnerships (WSP):  
Rockets, missiles, tracked vehicles/artillery,  
aircraft, torpedos, ammunition, drone
- Support Conferences (SC):  
Missiles, WARDAM II, intrusion detection system,  
radars, data handling and display systems
- Random brokerage and U.S. EUCOM MOU:  
Any type of individual requirement upon request
- Subscription: NMCRL, NADB, SHARE
- NATO Operational mission support with a go to war mission:  
Entered FRY with IFOR and set up BOAs for food,  
fuel and water, \$140 million contracting, support  
NATO depot in ZAGREB

## **NAMSA Funding**

The guiding financial principles are that finance is performed by project and that customers pay a fair share for the work provided by NAMSA. NAMSA has two kinds of budgets. The operational budgets normally contain credits for the creation, increase, modification and repair of stocks and equipment, for the purchase of supplies, for indirect services and for corresponding transportation costs. There are two kinds of operational expenditures: common expenditures (benefit of all customers of a program) and individual expenditures (benefit of individual customers). The U.S. accounts for about 30 percent of the operational budget. The administrative budgets normally contain all credits for the internal functioning of NAMSA, such as salaries, recurring expenditure for utilities, maintenance and other running costs, and capital equipment for data processing equipment, etc. Customer cost sharing formulas for administrative and operational budgets are used to partition costs within a project and are agreed by customer projects.

In the near future NAMSA will have in place management accounting that will enable customers to know the administrative cost at the time the transaction is made. Customers often save more in economy of scale transactions than they pay in the NAMSA administrative costs that are similar to the overhead costs paid to contractors. Other benefits that are harder to quantify include cost avoidance, resolution of diminishing manufacturing sources and material shortages, reduction in national test equipment requirements and inventories, mutual emergency support and financial considerations (interest earned on funds at NAMSA until day transferred to contractor, no value added tax, use of national credits at end of fiscal year).

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## **NAMSA Relations with FMS and Industry**

Currently, about 15 percent of NAMSAs contracts are through the American foreign military sales (FMS) program. For many items FMS offers the best price and turn around times. For some items it is the only source of supply and repair. Just as if it were another purchasing country, NAMSAs has FMS cases and annual FMS reviews to discuss problems and possible ways to resolve the problems. FMS is undergoing a reengineering effort, and NAMSAs would like to participate in this process.

With decreasing defense budgets, overcapacity, mergers and companies going out of the defense business, NAMSAs is being contacted by industry interested in consolidating business through NAMSAs. Industry can create better deals with multiple nations for performance, reliability and modifications to systems. NAMSAs directives (policy) and regulations (procedures) for procurement combined make a stack of papers less than a half an inch thick. It is easy to work with NAMSAs. Before contracting, NAMSAs has the funds from the nations and pays upon notification of shipment from the contractor. NAMSAs can work with industry to balance the workload for repair/overhaul. NAMSAs can provide, with national approval, supply support for repairs/overhauls. With multinational companies, ownership in foreign companies, and requirements to provide offset work, companies are interested in the deals that NAMSAs can broker. To accomplish this at an affordable cost, excellent relationships with partners from industry are essential. Procurement data on forthcoming invitations for bids and contracts are available to the defense industrial base of NATO member nations and will be electronically transmitted where possible. The number of projects supported by NAMSAs is predicted to increase from 30 to 50 by the year 2001. The consequent growth in financial turnover, especially in terms of an increase in the number and value of contracts placed with industry, should contribute to strengthening a competitive defense industry base. NAMSAs's lead-time for placing contracts with industry is counted in weeks. We will count in days or hours when electronic data interchange (EDI) is fully operational.

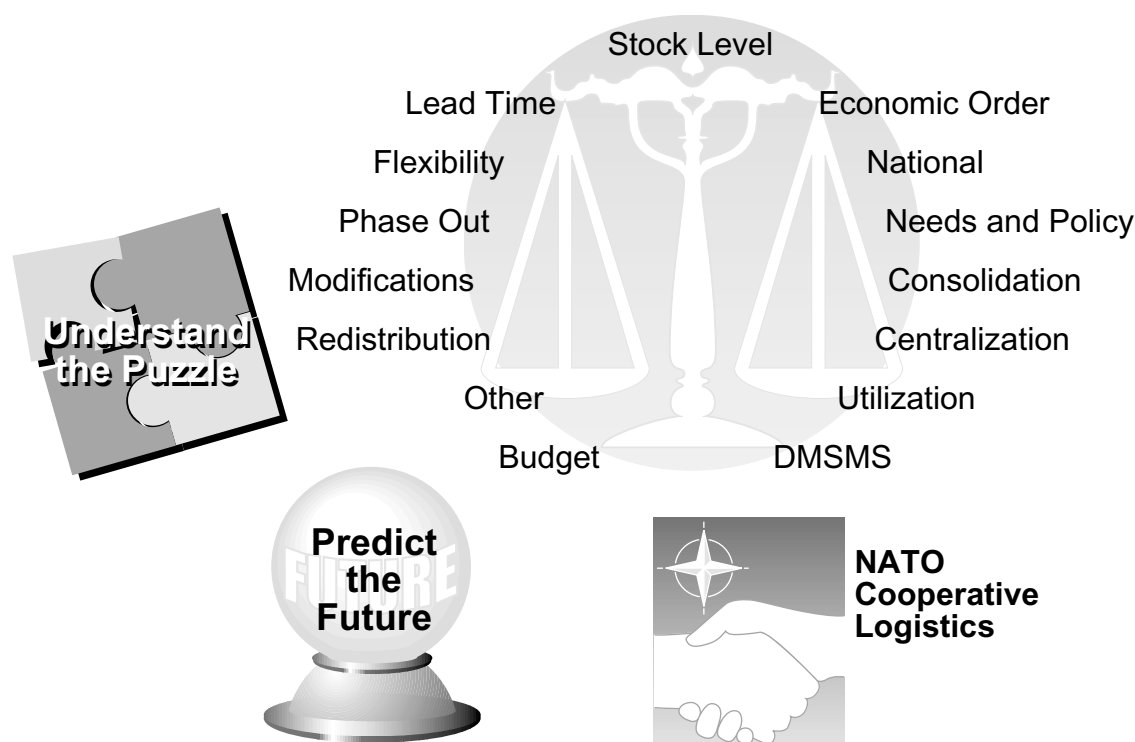
## **NATO Logistics Stock Exchange (NLSE)**

NAMSAs's vision is to do more and better with less, and the Agency is constructing what is called the "NATO Logistics Stock Exchange". Linking together, both conceptually and electronically, armed forces, NATO agencies and industry, the Stock Exchange will provide an electronic forum in which defense partners can make contact and do business. It is based on a concept and a mechanism whereby requirements can be met from available resources at any time, with the least possible delay and at the lowest price. In the field of materiel management, there is the potential to trade over 2,500,000 items used in common within the NATO sphere. Through the NLSE, armed forces will be able to jointly manage these items and predict their future requirements, while industry will gain insights enabling them to improve production planning and offer better delivery terms and lower prices. Logistics planning must be integrated with the acquisition management to achieve better contractual arrangements, less rework, less cost and better life cycle logistics. The big picture must be understood before logistics solutions are proposed and implemented. The optimization of one aspect of logistics can result in suboptimization of other areas of logistics. Successful logisticians conduct tradeoffs to achieve the best possible, total logistics solution within time, budget and other constraints. Efforts must be made to understand the individual and collective needs of the nations. Plans must reflect uncertainties of the future. NAMSAs's role in NATO cooperative logistics is to bring nations together with suppliers of goods and services for long-term relationships. The best logistics

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decisions can be made when global information is available. Data visibility from cooperating reporting systems would permit the analysis necessary to select the best alternatives and to avoid sub-optimized decisions. Logistics solutions that take advantage of economies of scale are the most cost-effective.

### **Logistics Is Balancing Trade-Off Decisions**

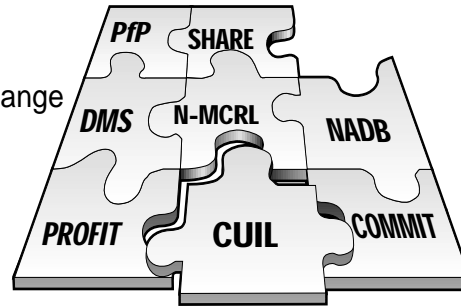


Nations use many of the same parts. Logisticians, whatever their assigned role, spend a great deal of time searching for supply and maintenance data. Any method that cuts down research time frees them to pursue other activities. Parts commonality information between NATO and some non-NATO nations is captured in the NATO codification system user registration field which is available in the NATO Master Cross Reference List (NMCRL) distributed by NAMSA on behalf of Allied Committee 135 on Codification on a worldwide subscription basis. Nations provide user registrations to the codification system when they want to know about changes, diminishing manufacturing source problems, etc., for a part they use. The NMCRL shows these user registrations cross-referenced to other data such as NATO stock number (NSN), part number, and manufacturer. The NAMSA-developed NATO ammunition data base is available on compact disc from the Agency on an annual subscription basis. This product provides full search facilities for identification of technical and logistics data on 100,000 ammunition and related items in the NATO nations' ammunition inventories. An integrated data base is maintained at NAMSA and is updated monthly by all NATO codification bureaus. Three CD-ROMs are updated and issued every 2 months to 1500+ subscribers worldwide.

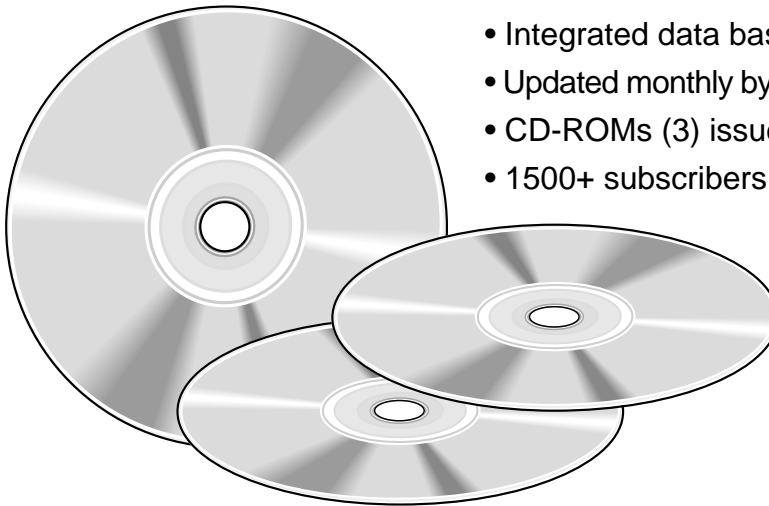
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## Basis for NATO Logistics Stock Exchange

- NATO Master Cross Reference List
- NATO Ammunition Database ('96)
- Stock Holding Asset Requirements Exchange
- Common Item Management ('98)
- Provisioning of Items ('99)
- Common User Item Lists (Ongoing)
- Partnership for Peace
- Diminishing Manufacturing Sources (DMS) (New)
  - GIDEP
  - Virtual Parts Supply Base
  - Type Designation Automation System



### NMCRL



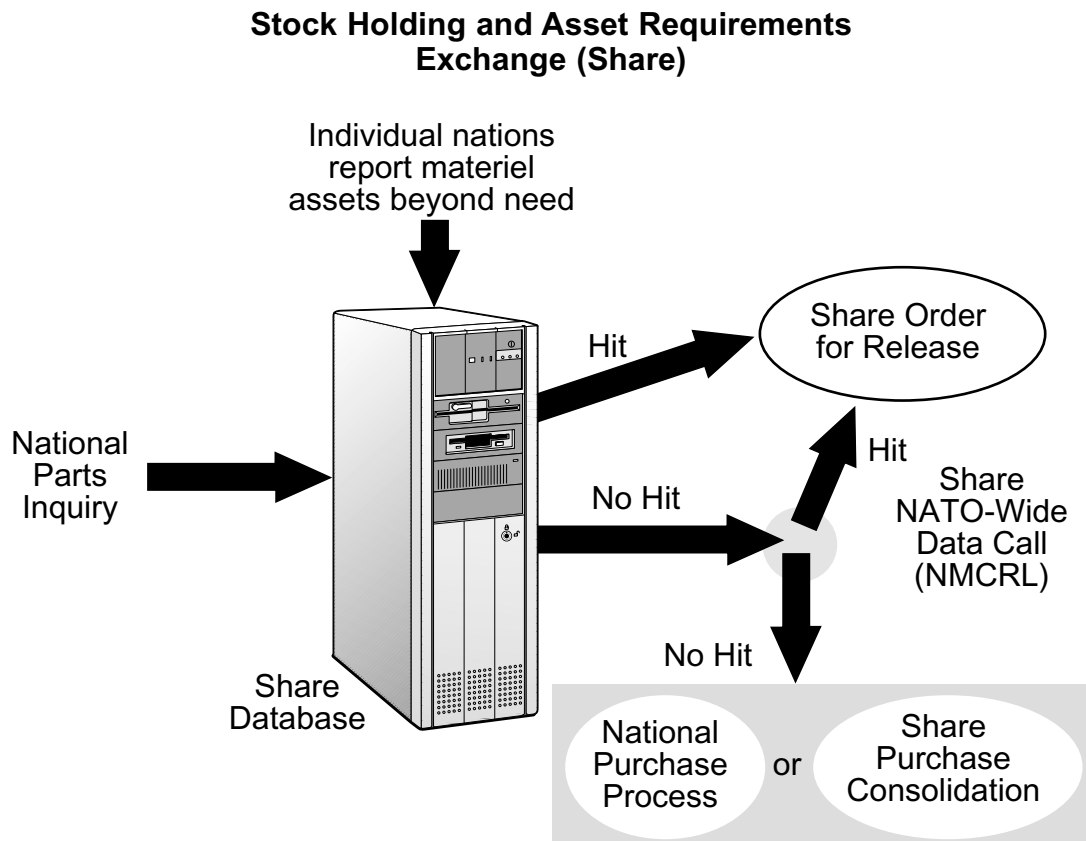
- Integrated data base at NAMS
- Updated monthly by all NATO Codification Bureaux
- CD-ROMs (3) issued every 2 months
- 1500+ subscribers worldwide

<b>Annual Subscriptions</b>
20,000 LUF NATO
25,000 LUF Other

- 16,000,000 NSNs
- 40,000,000 part numbers cross-referenced to NSN
- 21,000,000 user registration
- Supplier code and address
- Item name

Not only are the same parts used by many nations, but there is also an overabundance for many parts in some nations while a shortage exists for the same parts in other nations. There are 24 NATO armed forces taking advantage of this situation by subscribing to the NAMS Stock Holding and Asset Requirements Exchange (SHARE) redistribution system which has an annual subscription fee of about \$16,000 per armed force with a 3% transaction fee from both the buyer and seller.

Building on the SHARE infrastructure, NAMSA is performing a common item management (COMMIT) study with 15 armed forces uploading their inventories of stock including NATO stock numbers, part numbers, repairable status, quantity, demand in last eight quarters, unit price, etc. COMMIT will enable NATO nations to jointly manage their items of supply. COMMIT will provide the visibility and recommendations, but the nations still make the decisions. In the framework of virtual stock management, transparent calculations are made to determine redistribution opportunities and calculate global and individual needs to establish wholesale level contracts for just-in-time delivery. Stock will be “virtual” in that it does not need to physically be in a particular location but will be tracked by computer. Right now Nation A probably only knows what its own usage and desired and actual levels are. Nation A does not know how it compares to other nations in usage, cost and turnaround times (see the table below as an example). By global material management the data for all nations becomes transparent for better decisions. There are three major benefits to be realized. First, less excess will be built up during the life of a system. Second, stock held by nations can be less because redistribution as a source of supply is fast and, compared to most nations, the NAMSA procurement system is fast, thus reducing the procurement lead time. Third, the global stock level can be reduced since nations will be mutually supporting and have better prediction capabilities.



SHARE subscription = \$16,000 per armed force  
Transactions - buyer and seller both pay 3% value

The proposed provisioning file of items (PROFIT), has been approved by NAMSO for study. PROFIT would build on the SHARE/COMMIT infrastructure and via networks make known to industry future requirements, quantities and dates as early as possible. It is also an



### 1 NSN from Leopard Tank from COMMIT Study

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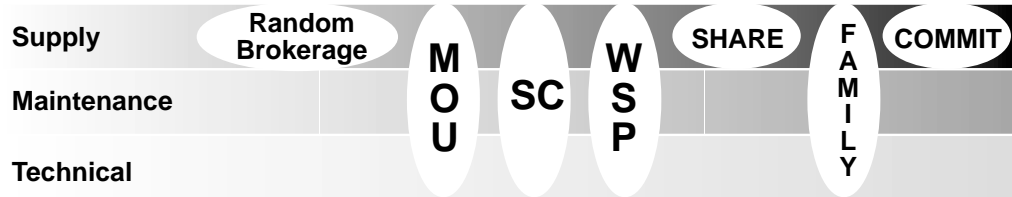
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BE	6680	EA	Y	363.58		97	2	5	11	97
DK	6680	EA	Y	399.58		0	2	9	6	4
GY	6680	EA	N	357.82		600				
NE	6680	EA	N	397.06		138	6	18	29	
NO	6680	EA	N	1052.10		6	0	6	2	
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BE	0	2	0	0	7	1	2	1	6.5	14.9
DK	2	2	3	1	1	2	5	1	8.5	0.0
GY	8	21	16	27	10	21	14	7	62.0	9.7
NE	7	0	3	0	1	0	1	0	6.0	23.0
NO	6	0	0	0	0	0	0	0	3.0	2.0
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DK	2	2	3	1	1	2	5	1	B	5
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NO	2	0	0	0	0	0	0	0	B	12
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electronic shopping mall where all suppliers and manufacturers can download their information on price and availability so that national procurement agencies can electronically buy in accordance with the terms and conditions established. We believe PROFIT would increase competition and decrease the acquisition lead time, costs of procurement and the prices of items of supply and repair.

### Family Weapon System Partnerships

SHARE, COMMIT, and PROFIT will provide, on an item management basis, material management services for NATO nations. NAMSAs have traditionally managed programs on a weapons system basis including supply, maintenance and technical services. A way to blend the new SHARE/COMMIT/PROFIT services with the traditional weapon system services and individual nation services (random brokerage, implementing and basic ordering agreements) is being developed to manage "family" weapon system partnerships as shown on the chart below. This enables low-density equipment systems to achieve the economies of scale to be more viable with NAMSAs services. Since its beginnings NAMSAs has been collecting listings of items of supply on weapon systems to determine the degree of commonality for potential NAMSAs support. These are called common user item lists (CUIL). This is a move towards logistics management based on information integration.

## Family Weapon System Partnerships



### Planned Family WSPs

- Helicopters
- Airplanes/Avionics
- Radars
- Medical
- C4I
- Air-Launched Missiles
- Electronic Warfare

### Basis for Family WSPs

- Groups systems to achieve economies of scale
- Similar technology, suppliers and customers
- Some common parts
- Uses SHARE/COMMIT
- Variable services for each customer
- Contractors cover more than one system
- Equitable cost sharing formula

### De Facto Family WSPs

- M-60/M-110
- C-130/P-3

## U.S. Navy

During the sixth Naval Logistics Projects Conference at the U.S. Naval Inventory Control Point (NAVICP) it was agreed to assign an officer to NAMSAs to increase mutual logistics support. The focus of this effort will be on four areas:

- 1) Increasing the U.S. Navy's use of NAMSAs random brokerage service;
- 2) NAVICPs plan is to integrate SHARE into the Navy's requisition processing system to allow automatic review of SHARE if no assets are available in the U.S. inventories and to load long supply and potential excesses into SHARE;
- 3) Involving the U.S. Navy in the C-130/P-3 Weapons System Partnership;
- 4) Investigating the U.S. Navy's uses for the Southern Operational Centre.

The Crane Division Naval Surface Warfare Center (NWSC) has offered to lead a surveillance radar cooperative logistics working group and the Port Hueneme Division of the NSWC is working with NAMSAs in the area of diminishing manufacturing sources and material shortages. Naval Air Systems Command is investigating the use of SHARE for an F/A-18 user group.

## Diminishing Manufacturing Sources and Material Shortages (DMSMS)

If approved by the NAMSO board of directors in December 1999, the Agency will proceed during 2000 to put this initiative into service. DMSMS is being recognized as a significant problem in supporting older weapon systems and even newer ones with a high content of microelectronics. As technology has advanced, many electronic items have many components that are not in production. Considerable expense is required to reengineer a part, and the use of global logistics data warehouses on the Internet is one way to exchange parts availability and

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DMSMS reprourement possibilities. DMSMS techniques have proven useful to AWACS and MLRS. NAMSAs has worked, for example, with the U.S. Defense Micro Electronics Agency for a MLRS printed circuit board, and an implementing agreement is in preparation for future work to reverse engineer microelectronic components that are no longer available to enable competitive reprourement. The NAMSAs hosted its third DMSMS seminar last May. NAMSAs has drafted an implementing agreement to work with the U.S. DoD DMSMS Teaming Group and act as the European DMSMS focal point for NATO/PfP nations for those NSNs with U.S. or Canadian NSNs and for establishing a subscription database system for European NSNs. DMSMS would be part of the NLSE.

### **World-wide Warehouse Redistribution Services (WWRS)**

While NAMSAs was developing SHARE, the U.S. Air Force Security Assistance Center (AFSAC) has created the World-wide Warehouse Distribution Service. Liaison has been continuous with the WWRS project manager, and NAMSAs has made joint presentations to U.S. and NATO customers. A general agreement has been made to link WWRS and SHARE so those NATO customers would not need to subscribe to both SHARE and WWRS. There are mutual benefits for linking SHARE/WWRS. Customers would have the most benefits. The WWRS Customer Handbook can be found on the Internet at <http://rock.afsac.wpafb.af.mil/wwrs/>.

### **Linking Databases**

One NAMSAs strategic goal is to improve electronic business. E-Business facilitates connections with customers, sharing information and collaborating on projects. Electronic business is the integration of business strategies, processes and technology to transact electronically and across the whole "trading" cycle business inside or outside the organization. For current electronic business practices NAMSAs has a procurement information exchange with Spain, the Netherlands and Canada, customer requirements input via the NATO Mailbox system, technical services such as CALS related information exchange, electronic banking, information exchange with NAMSO board of directors via E-mail and CD and NAMSAs Intranet. Future electronic business requirements include linking customers and suppliers, credit card shopping, supply and maintenance, improved NCIS as customer interface, NATO Logistics Stock Exchange and potential use of AECMA 2000M/EDIFACT logistics data exchange and technical services. NAMSAs has many potential information technology services that customers desire. We are now working with DoD to link our databases with GIDEP (Internet [www.gidep.corona.navy.mil](http://www.gidep.corona.navy.mil)) which consists of failure and reliability and maintainability information on piece parts and some components, metrology and engineering reports, and product notifications; JCALS [www.nalda.navy.mil/3.6.2/JCALs](http://www.nalda.navy.mil/3.6.2/JCALs) which provides for the electronic transfer and storage of information; JEDMICS <http://jtshelp.redstone.army.mil> that allows automated access to repositied engineering documentation; And CMIS [www.nawcsti.navy.mil/cmisis](http://www.nawcsti.navy.mil/cmisis) which is a U.S. DoD standard migration system that supports product life cycle configuration management; WWRS; and DMSMS. Implementing agreements are in process for most of these DoD links.

### **NATO/PfP Nations, Industry, FMS and NAMSAs Relationships**

The U.S. FMS system has had a long and positive history of supporting foreign customers who have acquired American systems. This includes continued support for systems not in the current U.S. inventory. New FMS ideas such as the Worldwide Warehouse Redistribution Services and the U.S. NAVICP FMS reserve are emerging. There are, however, trends such as

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U.S. depot and inventory control point closures, plans to decrease U.S. inventory, performance specifications, prime vendors and the ongoing FMS reengineering that may impact on FMS support. FMS customers worry about turn around times, surcharges over which they have no direct control and having defense work done in their own nations. These are several areas that could be explored to create a partnership of NATO/PfP nations, industry, FMS and NAMSA.

- More consolidation of NATO FMS requirements with NAMSA could be considered. Consolidation means fewer FMS cases, larger orders, better long range planning (with COMMIT), more project management at NAMSA, and fewer customers to interface with and about the same value of business. NAMSA would negotiate deals with FMS organizations on behalf of NATO nations to obtain the best features of both FMS and direct commercial sales in a mutually beneficial way.

- NAMSA (COMMIT and WSP programs) could select parts with potential needs that are scheduled for scrapping in the U.S., and the U.S. could make a containerized and bar coded shipment to the NAMSA Southern Operational Centre where NAMSA could sell parts on consignment. The U.S. could take back the parts remaining whenever needed for contingency operations, initial provisioning for new weapon system sales, etc.

- NAMSA could prepare an implementing arrangement with the U.S. AFSAC to interface SHARE with the WWRS. WWRS could be the major SHARE buyer from redistribution to meet non-NATO FMS commitments for non-standard parts.

- U.S. depots are no longer in Europe and U.S. forces are trying to find ways to reduce their logistics foot print in Europe. Since there may no longer be second sources for some items of repair, USAFE and USNAVEUR could explore the example of USAREUR in using European industry through NAMSA for some repairs/overhauls. Second sources in Europe could also be used to support FMS customers.

- In DMSMS situations where reengineering the part is the only solution, NAMSA will propose to consolidate requirements with NATO/PfP nations to help pay for the investment and increase the order quantity.

- SHARE could be connected to the U.S. FMS non-standard parts systems as a source of supply (SNAP, FAST TRACK and PROS). When FMS does not have items in stock, these electronic commerce systems are used. SHARE offers could also be made compatible with GIDEP.

## **Conclusion**

NAMSA hopes to work with NATO/PfP nations, industry and the U.S. FMS system to find ways to better support NATO/PfP customers. Since FMS reengineering is ongoing, this seems to be a good time for effective cooperation.

## **About the Author**

Tim Russell has been with NAMSA for seven years and is currently acting head of Corporate Planning and Marketing. His military career included field artillery, aviation, R&D and international cooperation. After graduation from the U.S. Military Academy with a BS in

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Engineering, he acquired a MSBA from Boston University and graduated from the DoD Defense Systems Management College Program Manager Course. He is a certified U.S. Army Materiel Acquisition Manager and is recognized as a Certified Professional Logistician by SOLE- The International Society of Logistics. His address is Corporate Planning and Marketing, L-8302, Capellen, Luxembourg, Email: [trussell@namsa.nato.int](mailto:trussell@namsa.nato.int).